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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,348	07/24/2001	Fredrik Persson	66477-012-5	3135

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EXAMINER

MACARTHUR, VICTOR L

ART UNIT	PAPER NUMBER
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3679

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/857,348

Applicant(s)

PERSSON ET AL.

Examiner

Victor MacArthur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Sweden on 12/03/1998. It is noted, however, that a copy of a certified copy of the priority document has not been received.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The word "means" is preceded by the word(s) "bearing" throughout the claims in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-8 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4976582 to Clavel in view of USPN 4695181 to Rahmede et al.

Regarding claim 1, Clavel discloses (fig.2) a Robot including at least one linkage device (5) in which pull rods (5a, 5b) are arranged in a multi-joint system where the joints include three-axle ball and socket joints (26a, 26b, 27a, 27b). Clavel does not expressly disclose that each ball and socket joint has a bearing and friction-increasing means. Rahmede shows (figs.5-8), a three-axle ball and socket joint, comprising a bearing (21) fixed so that the bearing does not rotate in a housing (19) in the socket of the joint the housing including a surface against which the bearing means abuts and the surface being provided with friction-increasing means (20) to increase friction between the surface and the bearing means. Rahmede teaches (col.1, 1.64 – col.4, 1.16) that providing a ball and socket joint with a bearing and friction-increasing means compensates for production tolerances and wear, and absorbs shock loads. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the robot of Clavel to use ball-and-socket joints with bearing and friction-increasing means, as taught by Rahmede, for the purpose of compensating for production tolerances and wear, and absorbing shock loads.

As to claim 2, Clavel, as modified by Rahmede above, discloses the robot according to claim 1, wherein the bearing comprises an annular bearing (Rahmede, 21).

As to claim 3, Clavel, as modified by Rahmede above, discloses the robot according to claim 1, wherein the friction-increasing means is structured as to penetrate the bearing means effecting a permanent deformation (Rahmede, col.4, 11.9-35).

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As to claim 4, Clavel, as modified by Rahmede above, discloses the robot according to claim 1, wherein the friction-increasing means comprise a plurality of grooves (Rahmede, 22).

As to claim 5, Clavel, as modified by Rahmede above, discloses the robot according to claim 1, wherein the bearing (Rahmede 21) abuts with the surface and is pressed there against to fit tightly (as best seen in Rahmede, fig.5).

As to claim 6, Clavel, as modified by Rahmede above, discloses the robot according to claim 4, wherein the grooves are oriented primarily parallel with the central axis of the bearing.

As to claim 7, Clavel, as modified by Rahmede above, discloses the robot according to claim 1, wherein the bearing is comprised of an elastic material (Rahmede, col.2, ll.1-10).

Rahmede does not disclose that the elastic material is a polymer material. However, a polymer material is within the scope of Rahmede's disclosure. Further, applicant is reminded that it has generally been recognized that selection of a known material based upon its suitability for the intended use is a design consideration within the skill of the art. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). The use of elastic materials that are polymer materials is well known. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to use a polymer material to construct the socket of Rahmede, as such practice is a design consideration within the skill of the art.

As to claim 8, Clavel, as modified by Rahmede above, discloses the robot according to claim 1. Clavel does not explicitly disclose that the robot is a delta robot. The applicant clearly states that the prior art to Clavel comprises a delta robot, as is stated in lines 17-19 of page 1 of the applicants specification.

As to claim 12, Clavel, discloses (fig.2) a method comprising the steps of providing at least one linkage device (5) for the robot, the device having pull rods (5a, 5b) arranged in a multi-joint system where the joints (26a, 26b, 27a, 27b) each comprise a three-axle ball and socket joint. Clavel does not expressly disclose that each ball and socket joint has a bearing and friction-increasing means. Rahmede shows (figs.5-8), a three-axle ball and socket joint, providing a socket of the joint with a housing (19) to accommodate a bearing (21), providing the housing with a surface against which the bearing abuts, fixing the bearing such that the bearing does not rotate in the housing, the fixing step being effected by providing the surface with friction-increasing means (20), and engaging the friction increasing means with the bearing when the bearing is positioned in place. Rahmede teaches (col.1, 1.64 – col.4, 1.16) that providing a ball and socket joint with a bearing and friction-increasing means compensates for production tolerances and wear, and absorbs shock loads. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the robot of Clavel to use ball-and-socket joints with bearing and friction-increasing means, as taught by Rahmede, for the purpose of compensating for production tolerances and wear, and absorbing shock loads.

As to claim 13, Clavel, as modified by Rahmede above, discloses the robot according to claim 12, comprising the further step of pressing the bearing to fit tightly in place (Rahmede, fig.5) in the housing of the joint socket.

As to claim 14, Clavel, as modified by Rahmede above, discloses the robot according to claim 12, comprising the further step of deforming (Rahmede, col.4, 11.9-35) the material of the bearing by permanent deformation by the friction-increasing means when the bearing is placed in position.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor MacArthur whose telephone number is (703) 305-5701.

The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (703) 308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

VLM

VLM
November 13, 2002

Lynne H. Browne for

Lynne H. Browne
Supervisory Patent Examiner
Technology Center 3600